

# Overview of MSFC Natural Environments Proposed Use of Doppler Radar Wind Profilers on Day-of-Launch

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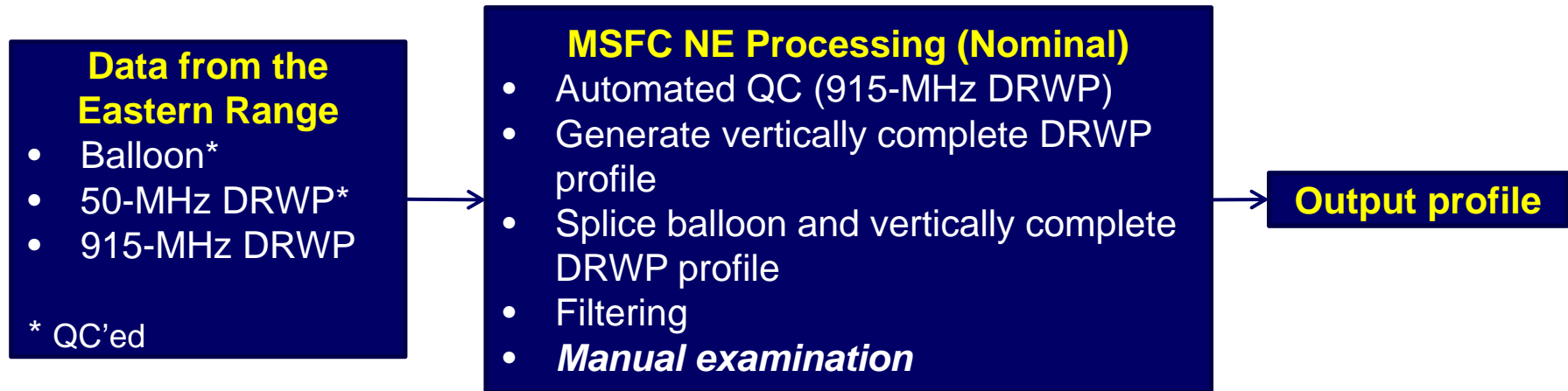
*Presentation to the Day of Launch Working Group*

# Background

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- Marshall Space Flight Center Natural Environments (MSFC NE) has developed algorithms to generate vertically complete profiles from the Eastern Range Doppler Radar Wind Profiler (DRWP) network.
  - Automated quality control (QC)
  - Interpolating schemes
  - Filtering
  - Manual QC
- Spliced profiles are used in Space Launch System trajectory and loads design analyses.
- Evaluate how to incorporate algorithms to process spliced profiles on day-of-launch.
- MSFC NE is planning to develop the capability to generate a vertically complete wind profile from any source during day-of-launch (DOL) operations.

# Proposed Method to Generate DOL Wind Profiles



- MSFC NE briefs DOL team on measurement system status before DOL.
- MSFC NE generates output wind profile based on *a posteriori* knowledge and QC.
- MSFC NE distributes output wind profile through the Meteorological Interactive Data Display System (MIDDS) to users at JSC and KSC.

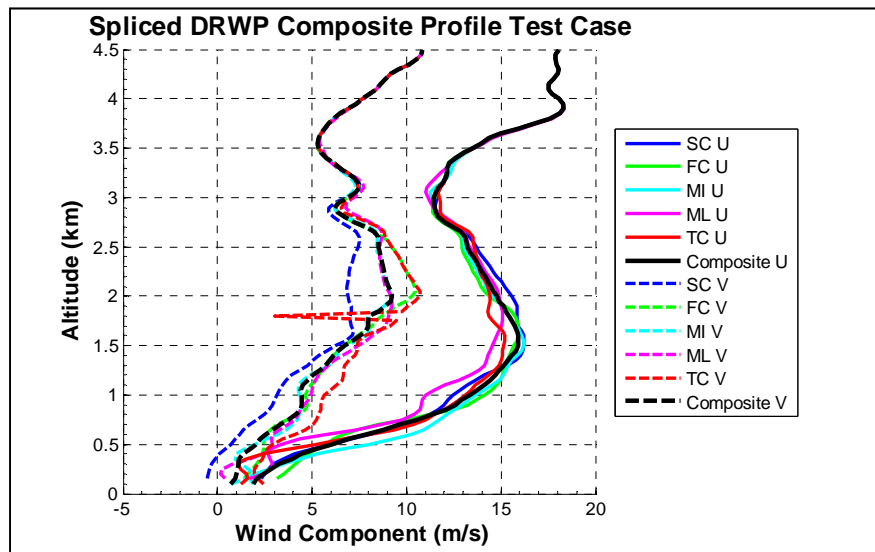
# Forward Work

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- Develop software to process real-time data from MIDDs on DOL.
  - Define software requirements.
  - Incorporate DRWP splicing and wind filtering algorithms.
  - Enable MSFC NE DOL personnel to quickly and efficiently examine profiles and select the profile to use.
  - Perform verification and validation tests.
- Estimated completion date spring 2015.

## Backup

# Available Data



- Overlay wind profiles from different sources.
  - DRWP
  - Balloon
- DRWP profiles
  - QC'ed 50-MHz DRWP data from the Eastern Range.
  - Non-QC'ed 915-MHz DRWP data from ER. Data QC'ed by MSFC.
  - DRWP profiles spliced by MSFC NE.
- Manual examination needed.
- Selected profile written to file for distribution to end users.